



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,506	01/27/2004	Steven Paul Randall	K315.133.101	2512
25281	7590	11/30/2005	EXAMINER CUEVAS, PEDRO J	
DICKE, BILLIG & CZAJA, P.L.L.C. FIFTH STREET TOWERS 100 SOUTH FIFTH STREET, SUITE 2250 MINNEAPOLIS, MN 55402			ART UNIT 2834	PAPER NUMBER

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/765,506	Applicant(s) RANDALL ET AL.	
	Examiner Pedro J. Cuevas	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 1-5, filed on October 24, 2005, with respect to the rejection(s) of claim(s) 1-27 under U.S.C. § 102 and § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 4,025,960 A to Gray et al.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,400,655 to Curtiss et al. in view of U.S. Patent No. 4,025,960 A to Gray et al.

Curtiss et al. disclose the construction of a self-generative variable speed induction motor drive comprising:

a first part (stator) with at least one phase winding (15) and a second part (rotor) which is arranged to move relative to the first part to generate electrical power;

means (109) for creating a bias flux linking the at least one phase winding, comprising at least one bias coil (6) arranged to couple with a proportion of the phases; and

means (101) for limiting the magnitude of the phase voltage below that otherwise induced in the at least one-phase winding by the bias flux;

means (201) for restricting the flow of current in the at least one phase winding to one direction, collectively comprising at least one diode (9-14) serially connected with the at least one phase winding, and being part of a full-wave rectifier circuit (8);

a constant alternating current source (2) connected to excite the at least one bias coil;

a power converter circuit (203 + 80 + 206 + 206) free of active switches; and

a resistive load (resistors between VA, VB, VC, and VN) connected across the or each phase winding.

However, it fails to disclose a method of operating a variable reluctance machine as a generator.

Gray et al. teach the use and construction of a variable reluctance A.C. electrical generator and method of making the same for the purpose of providing a variable reluctance electrical generator having a unique structure which, for any given design parameters, tends to maximize air gap areas and thus minimize mmf drops thereacross.

It would have been obvious to one skilled in the art at the time the invention was made to use the variable reluctance A.C. electrical generator disclosed by Gray et al. on the self generative variable speed induction motor drive disclosed by Curtiss et al. for the purpose of providing a variable reluctance electrical generator having a unique structure which, for any given design parameters, tends to maximize air gap areas and thus minimize mmf drops thereacross.

4. With regards to claims 1-15, Curtiss et al. in view of Gray et al. disclose a method of operating (Figures 1, 2, and 3 of Curtiss et al. and column 7, lines 6-26 of Gray et al.) a self

Art Unit: 2834

generative variable speed induction motor drive or variable reluctance A.C. electrical generator comprising the steps of:

- creating a bias flux linking the at least one phase winding;

- limiting the phase voltage to a magnitude below that otherwise induced in the phase winding by the bias flux;

- restricting the flow of current in the at least one phase winding to one direction;

- restricting the flow of current by at least one diode, being part of a full-wave rectifier circuit, which also serves to limit the phase voltage;

- causing the phase current to flow through a resistor;

- controlling an electrical output of the machine by controlling the bias flux;

- creating the bias flux linking the at least one phase winding with a bias coil;

- controlling output power of the machine by controlling the speed of the machine;

- controlling output power of the machine by adjusting the magnitude to which the phase voltage is limited; and

- wherein:

- the bias coil is arranged to couple with a proportion of the phase windings of the machine;

- the bias flux is produced by a constant current in the bias coil;

- the bias flux is produced by an alternating current in the bias coil;

- the machine is connected to a power converter circuit;

- the power converter circuit is free of active switches;

Art Unit: 2834

the power converter circuit includes active switches which are kept open while the variable reluctance machine is operated as a generator.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

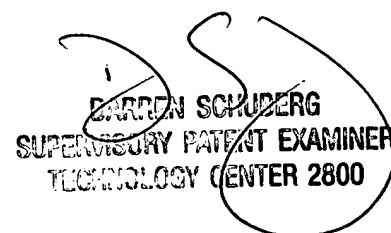
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (571) 272-2021. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Pedro J. Cuevas
November 22, 2005



DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800